SEQUENCE LISTING

<110> ZHANG, HUANMIN

AX, ROY L

BELLIN, MARY E

<120> ISOLATED POLYNUCLEOTIDE SEQUENCES ENCODING A FERTILITY ASSOCIATED ANTIGEN

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<151> 2000-07-14

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ctc tat aaa gaa aag cta gtg tct gta aaa caa agc tac ctc tac cac       144
Leu Tyr Lys Glu Lys Leu Val Ser Val Lys Gln Ser Tyr Leu Tyr His
        35                  40                  45

gac tat cag gct gga gac gca gat gtg ttt tcc agg gaa ccc ttt gtg       192
Asp Tyr Gln Ala Gly Asp Ala Asp Val Phe Ser Arg Glu Pro Phe Val
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gtc tgg ttc cag tca ccc tac acc gct gtc aag gac ttc gtg att gtc       240
Val Trp Phe Gln Ser Pro Tyr Thr Ala Val Lys Asp Phe Val Ile Val
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ccc ctg cac acc acc cct gag aca tcc gtt aga gag att gat gag ctg       288
Pro Leu His Thr Thr Pro Glu Thr Ser Val Arg Glu Ile Asp Glu Leu
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gct gat gtc tac aca gat gtg aaa cgt cgc tgg aat gca gag aat ttc       336
Ala Asp Val Tyr Thr Asp Val Lys Arg Arg Trp Asn Ala Glu Asn Phe
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Ile Phe Met Gly Asp Phe Asn Ala Gly Cys Ser Tyr Val Pro Lys Lys
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atc ggg gac caa gag gac acc acg gtc aag aag agc aca aac tgc gcc       480
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145                 150                 155                 160

tat gac agg atc gtg ctt aga gga caa aat att gtc aac tct ggt ggt       528
Tyr Asp Arg Ile Val Leu Arg Gly Gln Asn Ile Val Asn Ser Gly Gly
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cct caa tca aac ctc gtc ttt gat ttc cag aaa gct tac agg ttg tct       576
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Val Trp Phe Gln Ser Pro Tyr Thr Ala Val Lys Asp Phe Val Ile Val
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Pro Leu His Thr Thr Pro Glu Thr Ser Val Arg Glu Ile Asp Glu Leu
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Ala Asp Val Tyr Thr Asp Val Lys Arg Arg Trp Asn Ala Glu Asn Phe
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Tyr Asp Arg Ile Val Leu Arg Gly Gln Asn Ile Val Asn Ser Gly Gly
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ctggagacgc agatgtgttt tccagggaac cctttgtggt ctggttccag tcaccctaca 240

ccgctgtcaa ggacttcgtg attgtccccc tgcacaccac ccctgagaca tccgttagag 300

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tcaactctgg tggtcctcaa tcaaacctcg tctttgattt ccagaaagct tacaggttgt 600

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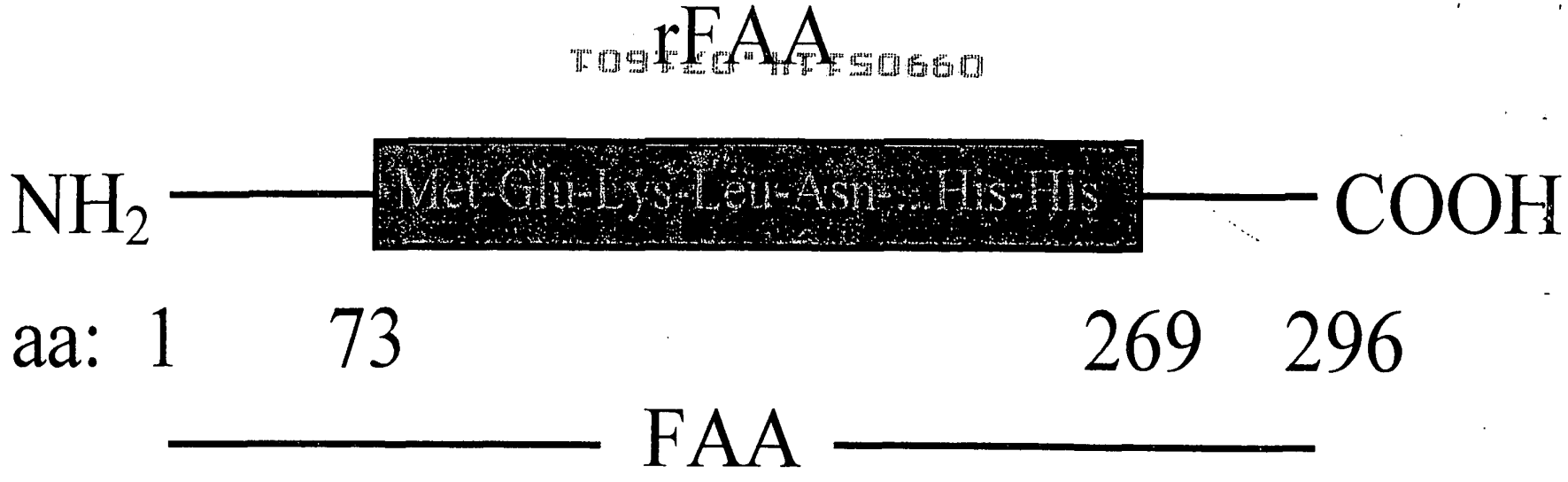


Figure 1. Depicted recombinant FAA (rFAA), produced from cloned partial cDNA of bovine FAA gene in E. coli, showing the comparative position of the segment corresponding to intact bovine FAA.

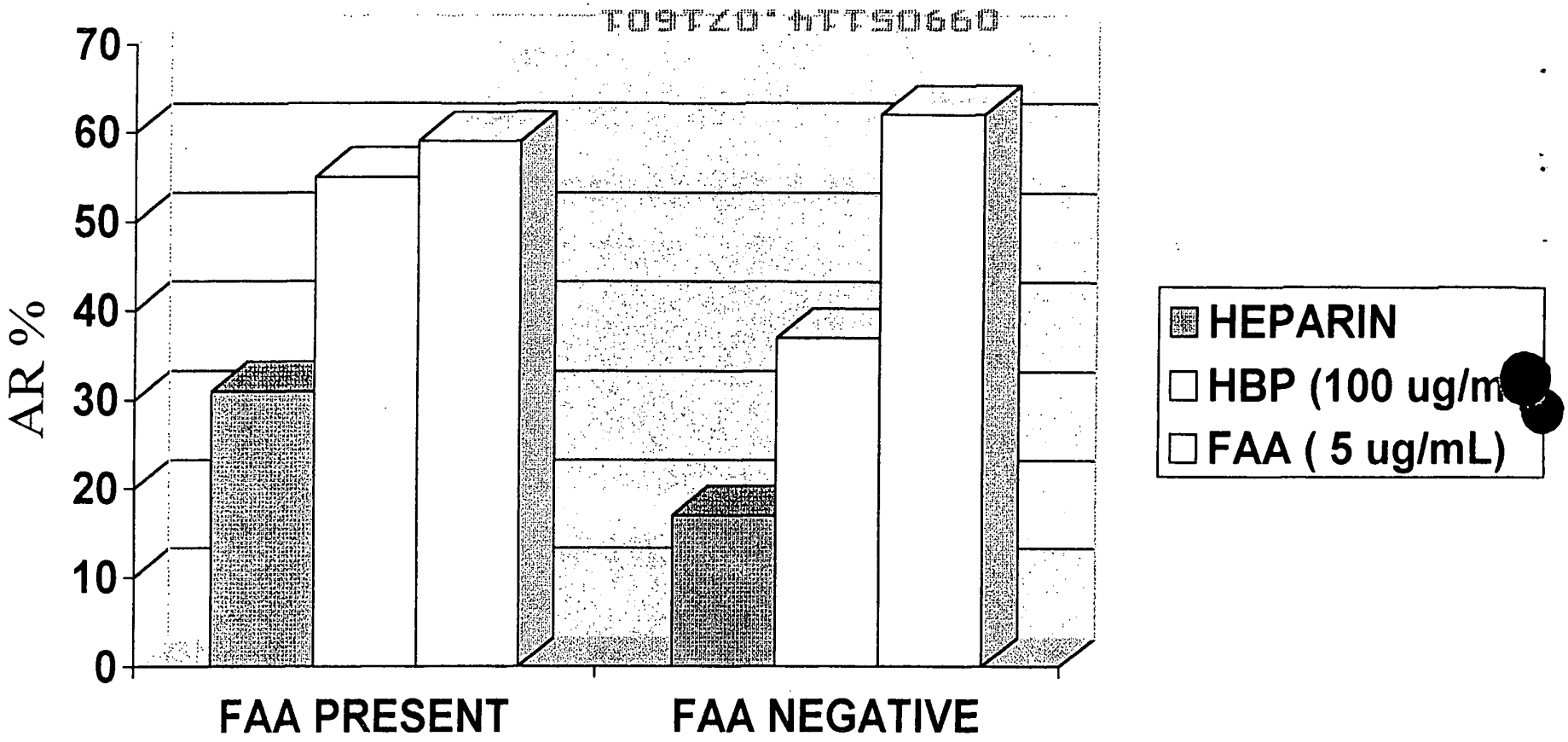


Figure 2. Percent increase in acrosome reaction for each treatment above th control level. FAA present represents a fertile bull with detectable FAA on sperm and FAA negative represents a non-fertile bull without detectable FAA on sperm. The fertile bull (FAA present) reacted better to heparin induction of capacitation/acrosome reactions. Addition of FAA (5 ug/mL) stimulated maximum increase of acrosome reactions for each bull.

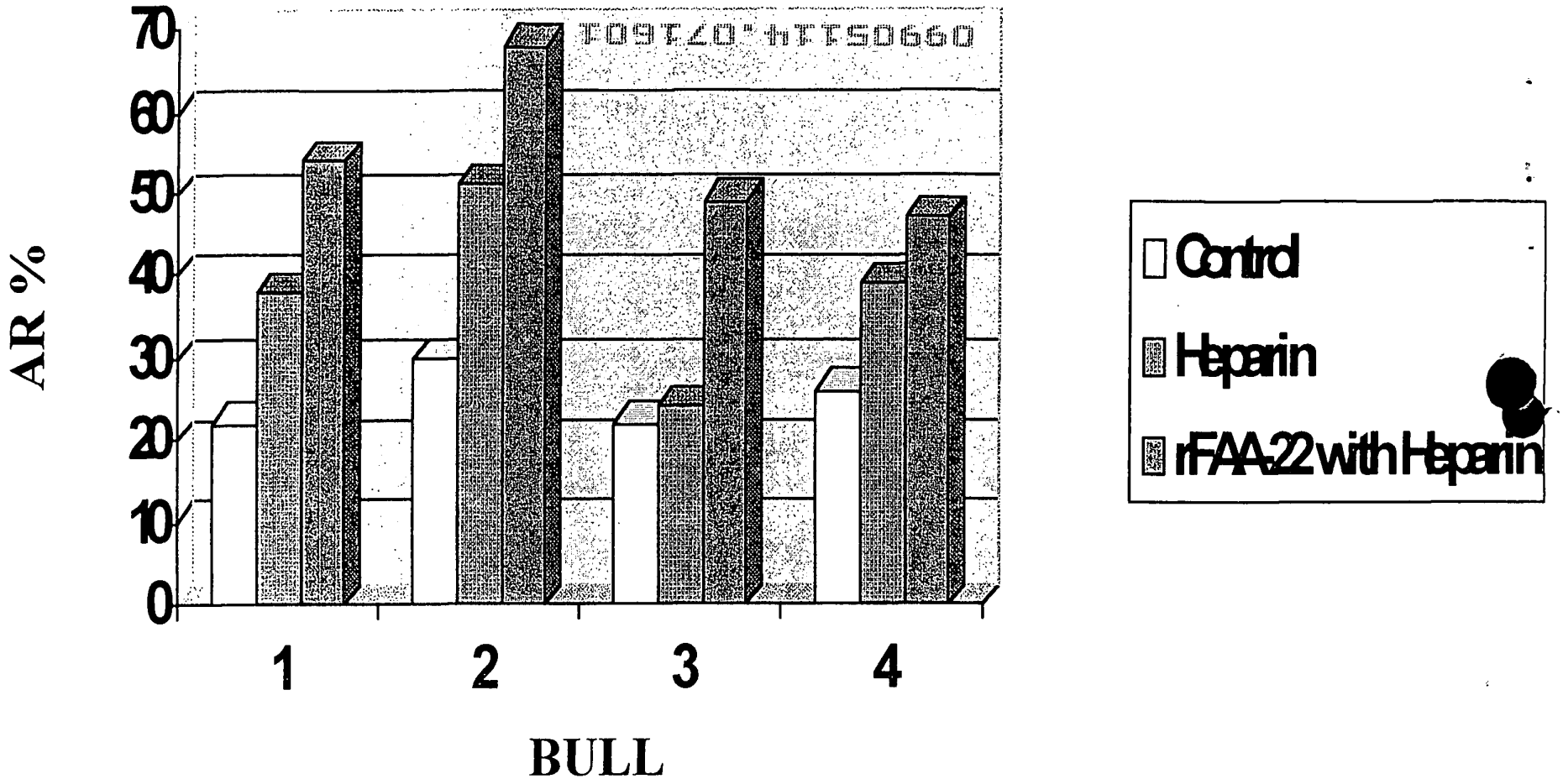


Figure 3. Effects of heparin alone (10 μg/ml) or recombinant FAA (rFAA, 20 μg/ml) with heparin to stimulate acrosome reaction in washed sperm from four fertile bulls.

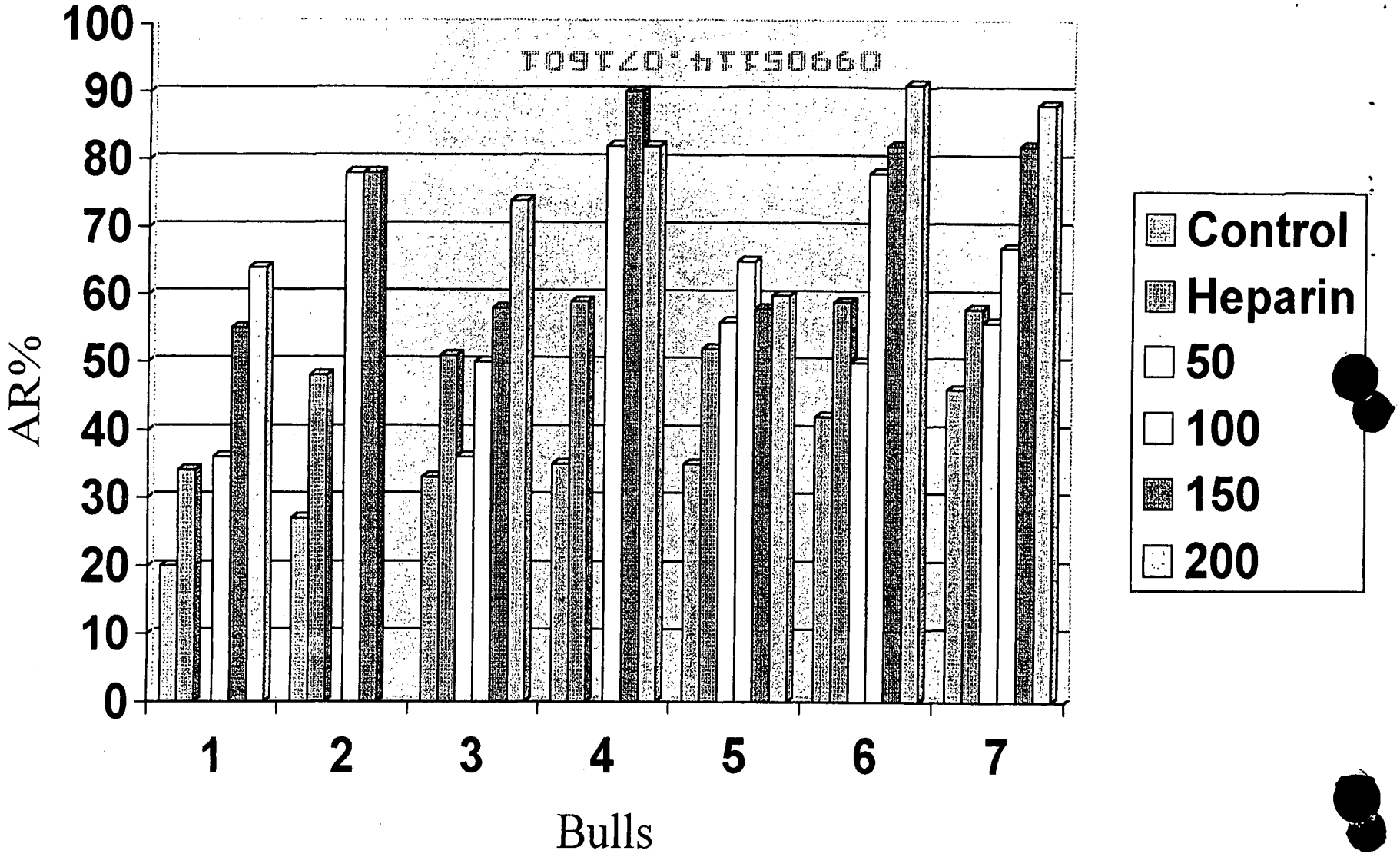


Figure 4. Dose-response comparisons (μg/ml) of the 22kDa recombinant FAA (rFAA) added with heparin (10 μg/ml) to washed sperm. Averages from two to five different ejaculates are presented as each datum point for each bull.

Thursday, July 06, 2000

1 ACAACAGGAT CTGCCCCATA CTG**ATGGAGA AGCTAAACGG AAATTCAAGA**

51 **AAAGGCATAA CATACAACTA TGTGATTAGC TCTCGCCTTG GAAGAAACAC**

101 **ATATAAAGAA CAGTATGCCT TTCTCTATAA AGAAAAGCTA GTGTCTGTAA**

151 **AACAAAGCTA CCTCTACCAC GACTATCAGG CTGGAGACGC AGATGTGTTT**

201 **TCCAGGGAAC CCTTTGTGGT CTGGTTCCAG TCACCCTACA CCGCTGTCAA**

251 **GGACTTCGTG ATTGTCCCCC TGCACACCAC CCCTGAGACA TCCGTTAGAG**

301 **AGATTGATGA GCTGGCTGAT GTCTACACAG ATGTGAAACG TCGCTGGAAT**

351 **GCAGAGAATT TCATTTTCAT GGGTGACTTC AATGCTGGCT GCAGCTACGT**

401 **CCCCAAGAAG GCCTGGAAGG ACATCCGCCT GAGGACGGAC CCCAAGTTCG**

451 **TTTGGCTGAT CGGGGACCAA GAGGACACCA CGGTCAAGAA GAGCACAAAC**

501 **TGCGCCTATG ACAGGATCGT GCTTAGAGGA CAAAATATTG TCAACTCTGG**

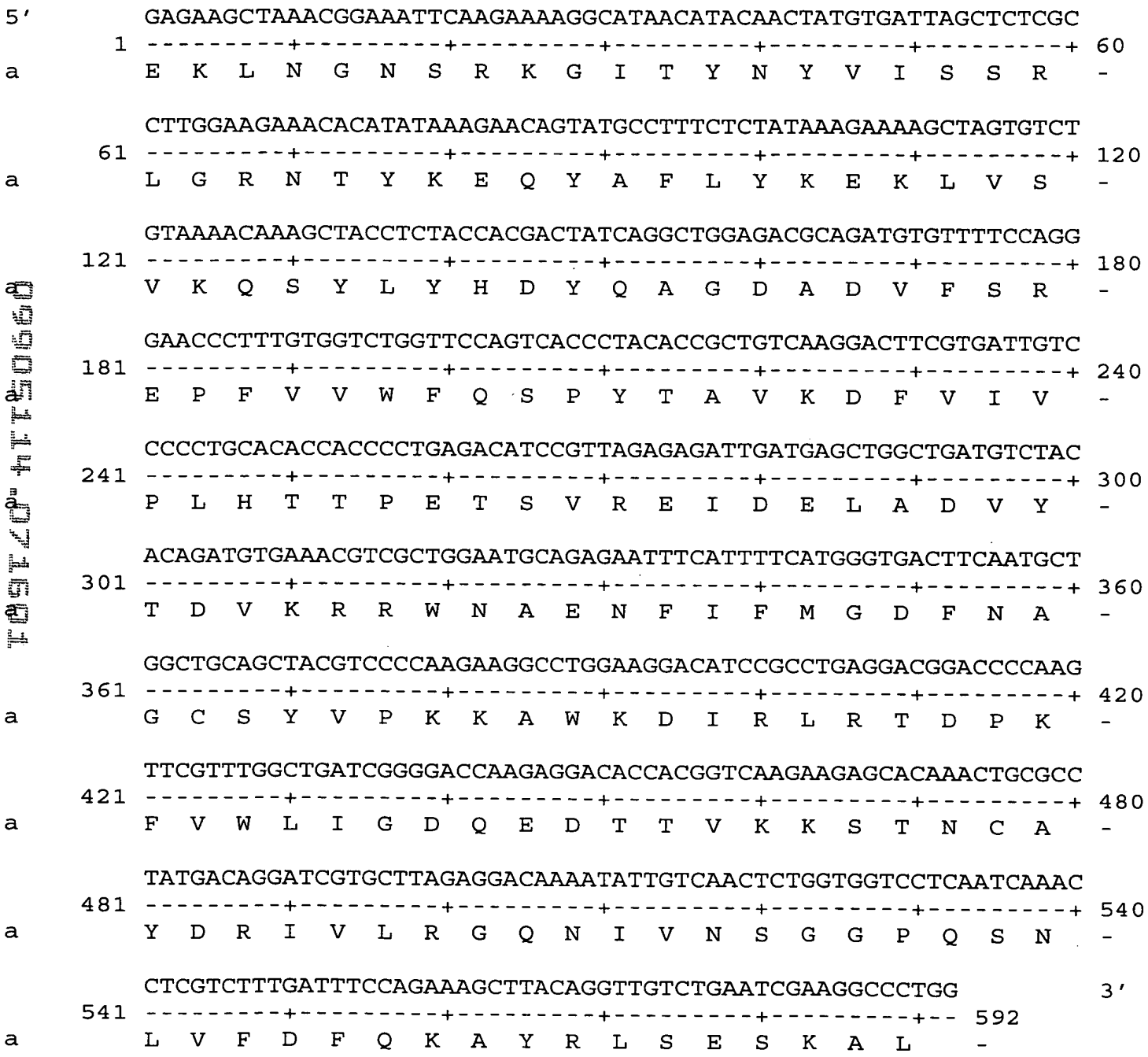
551 **TGGTCCTCAA TCAAACCTCG TCTTTGATTT CCAGAAAGCT TACAGGTTGT**

601 **CTGAATCGAA GGCCCTGGAT GTCAGCGACC ACTTTCCAGT TCATCATCAT**

651 **CATCATCATG AAGAACCA**TG A

Notes: Upstream primer sequence;
Codon sequence responsible for the rFAA product;
Stop codon.

Figure 6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CTTGGAAGAAACACATATAAAGAACAGTATGCCTTTCTCTATAAAGAAAAGCTAGTGTCT
61 ---------+---------+---------+---------+---------+---------+ 120
a L G R N T Y K E Q Y A F L Y K E K L V S -
GTAAAACAAAGCTACCTCTACCACGACTATCAGGCTGGAGACGCAGATGTGTTTTCCAGG
121 ---------+---------+---------+---------+---------+---------+ 180
a V K Q S Y L Y H D Y Q A G D A D V F S R -
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181 ---------+---------+---------+---------+---------+---------+ 240
a E P F V V W F Q S P Y T A V K D F V I V -
CCCCTGCACACCACCCCTGAGACATCCGTTAGAGAGATTGATGAGCTGGCTGATGTCTAC
241 ---------+---------+---------+---------+---------+---------+ 300
a P L H T T P E T S V R E I D E L A D V Y -
ACAGATGTGAAACGTCGCTGGAATGCAGAGAATTTCATTTTCATGGGTGACTTCAATGCT
301 ---------+---------+---------+---------+---------+---------+ 360
a T D V K R R W N A E N F I F M G D F N A -
GGCTGCAGCTACGTCCCCAAGAAGGCCTGGAAGGACATCCGCCTGAGGACGGACCCCAAG
361 ---------+---------+---------+---------+---------+---------+ 420
a G C S Y V P K K A W K D I R L R T D P K -
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421 ---------+---------+---------+---------+---------+---------+ 480
a F V W L I G D Q E D T T V K K S T N C A -
TATGACAGGATCGTGCTTAGAGGACAAAATATTGTCAACTCTGGTGGTCCTCAATCAAAC
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a Y D R I V L R G Q N I V N S G G P Q S N -
CTCGTCTTTGATTTCCAGAAAGCTTACAGGTTGTCTGAATCGAAGGCCCTGG 3′
541 ---------+---------+---------+---------+---------+-- 592
a L V F D F Q K A Y R L S E S K A L -